Re-evaluation of a riparian restoration experiment in the Western Cape Province: Status 8 years down the line

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In 1998, a study was initiated to assess the relative effectiveness of three different sowing treatments for reducing soil erosion and restoring indigenous riparian vegetation cover after alien clearing in the Western Cape. The study concluded that introducing a mixture of seed to a riparian zone with a history of invasion can increase indigenous vegetation cover and species richness and has a stabilizing effect on eroded riverbanks. We report on a re-assessment of the restoration plots after a period of 8 years (with no follow up control) and a summer fire in 2005. The re-assessment included a survey of all the burnt woody material within the different treatment plots to determine species presence (dead or resprouting) and abundance, as well as a survey of seedlings in a post-fire environment. Woody invasive plants (IAPs) dominated all plots, and had survived the burn with the majority re-sprouting, indicating the dire need for follow-up control to justify initial clearing and restoration cost. However the re-assessment revealed that indigenous vegetation cover was considerably higher in the plots that had received sowing treatments, while the control plots were dominated by *Acacia mearnsii*, the main invader of the tributary. Restoration of riparian areas after alien plant clearing has potential, but must be coupled with a long-term plan for follow up removal of post clearing IAP recruits.

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A quick and robust biomass estimation method for plants of diverse growth forms

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A new non-destructive technique suited for measuring above-ground biomass of various growth forms is described. The technique is based on a regression relationship between multiple mini-disk (3 cm diameter) height measurements (25–100 per 0.25 m^2), as measured with a newly designed measuring instrument, and the weighed biomass of the respective growth forms. A description of the measuring instrument and the results of a field test conducted in a multi-layered renosterveld shrubland are provided. The technique proved to be very effective in predicting the biomass of all three the major growth forms (shrub, stoloniferous grass and tussock grass) present in the area, even at a very low number of measurements per area (0.25 m^2). This new technique provides a quick and accurate alternative to existing biomass estimation techniques, especially where time and complexity of vegetation structure is of essence.

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The use of inflorescence explants for micropropagating *Eucomis zambesiaca*

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Although *Eucomis* species have been successfully micropropagated using bulb scales, this leads to destructive bulb harvesting. Inflorescence explants are a useful alternative, especially in ornamental breeding programmes selecting for desirable floral traits. *Eucomis zambesiaca* was used as a model plant to determine whether members of this horticulturally and medicinally valuable genus could be successfully micropropagated from inflorescence explants. Peduncles, pedicel-peduncles, leaves and twin-scales were placed on modified MS media supplemented with BA and NAA. Peduncles produced the highest number of shoots. Explants from young, half-open inflorescences, especially those near the apex, were highly regenerative. Shoot initiation was indirect in all explants except twin-scales. Optimal shoot initiation for both leaf and twin-scales was achieved in media supplemented with BA:NAA (5:5 mg L^{-1}) whereas BA:NAA combination (1:5 mg L^{-1}) and NAA only (5 mg L^{-1}) were optimal for peduncle and pedicel-peduncle explants respectively. Shoots from peduncle and leaf explants formed bulblets readily in medium supplemented with BA:NAA (5:1 mg L^{-1}). The largest bulblets were, however, produced in medium containing 9% (w/v) sucrose and 5% (w/v) activated charcoal. The type of explant also influenced *in vitro* bulbing as primary shoots obtained from peduncles produced larger bulblets than those from the leaves. It is concluded that inflorescence explants are useful non-destructive alternative for micropropagation of *Eucomis* species.

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